

**ABSTRACT OF THE DISCLOSURE**

A lamp house stores twenty-seven flash lamps in such a state that a longitudinal direction of each of the twenty-seven flash lamps extends in a horizontal direction (Y-direction), and that the twenty-seven flash lamps are arranged in parallel to one another at equally spaced intervals in a horizontal direction (X-direction) perpendicular to the longitudinal direction. There is employed such a layout that a direction of substrate loading and unloading by a transport robot is perpendicular to the longitudinal direction of the flash lamps (the longitudinal direction of the lamp house). In this layout, the distance required for the transport robot to transfer a semiconductor wafer by slidingly moving a transport arm can be minimized to permit a compact transport robot, so that a thermal processing apparatus itself is compact and excellent in maintainability.